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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BARAN, MARY C	

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,712	TRYON ET AL.	
	Examiner	Art Unit	
	Mary Kate B Baran	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 June 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The action is responsive to the Amendment filed on 6 February 2004. Claims 1-76 are pending. Claims 1, 5-9, 11, 14-16, 18-23, 25, 28, 29, 31, 32, 34, 35, 37-43, 45, 48, 52, 56, 57 and 59-67 have been amended. Claims 68-76 are new.

2. The amendments filed 6 February 2004 are sufficient to overcome the prior objections to the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 12-14, 17, 25-34, 44, 48-51, 55, 56, 66 and 67 are rejected under 35 U.S.C. 102(e) as being anticipated by Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist).

Referring to claims 1, 25 and 48, Quist teaches a computer implemented method, apparatus, and a computer program product for use in conjunction with a computer system for predicting failure in a system (see Quist, column 4 lines 41-55),

comprising: sensors for acquiring data from a system (see Quist, column 3 lines 27-33); a first computer comprising: a processor (see Quist, column 5 lines 19-22); a memory containing: instructions for measuring said data (see Quist, column 4 lines 12-21); instructions for creating a prediction of a failure of said system using a physics based probabilistic model and said data (see Quist, column 3 lines 49-56); and instructions for communicating said prediction (see Quist, column 3 lines 57-61); and a communication device for communicating said prediction (see Quist, column 3 lines 57-61).

Referring to claims 2, 27 and 49, Quist teaches that said measuring further comprises receiving system information from said system (see Quist, column 4 lines 17-21).

Referring to claims 3 and 50, Quist teaches that said creating further comprises creating a prediction of a failure of a component of said system (see Quist, column 5 lines 7-10 and column 8 lines 32-36).

Referring to claims 4, 44 and 51, Quist teaches that said creating further comprises creating a prediction of a failure of multiple systems based on said prediction (see Quist, column 6 lines 7-20).

Referring to claim 5, Quist teaches that said measuring (see Quist, column 4 lines 12-21) and creating (see Quist, column 3 lines 49-56) steps are performed on said system (see Quist, column 3 lines 16-22).

Referring to claims 6, 33 and 55, Quist teaches comparing said prediction to criteria (see Quist, column 6 lines 7-16).

Referring to claim 7, Quist teaches that at least one of said creating and communicating steps occurs at a location remote from the system (see Quist, column 3 lines 49-61 and Figure 1).

Referring to claims 8, 34 and 56, Quist teaches that said probabilistic model comprises multiple physics based probabilistic models (see Quist, column 5 lines 36-45).

Referring to claim 12, Quist teaches sending said data to a remote location and wherein said creating occurs at said remote location (see Quist, column 5 lines 36-45).

Referring to claim 13, Quist teaches receiving said prediction from said remote location (see Quist column 5 lines 46-50).

Referring to claim 14, Quist teaches developing said physics based probabilistic model prior to said creating (see Quist, column 3 lines 49-56).

Referring to claim 17, Quist teaches that said developing further comprises setting criteria for communicating said prediction (see Quist column 3 lines 49-65).

Referring to claim 26, Quist teaches that said instructions for creating further comprise instructions for predicting failure of at least one component of said system (see Quist, column 5 line 67 – column 6 line 6).

Referring to claims 28 and 66, Quist teaches a second computer program product comprising a second computer readable storage medium and a second computer program mechanism embedded therein (Quist et al., Figure 1) containing: instructions for measuring said data (Quist et al., column 5 lines 23-28); instructions for storing said data (Quist et al., column 28-35); and instructions for sending said data to said first computer as said system information (Quist et al., column 5 lines 46-50).

Referring to claims 29 and 67, Quist teaches a second computer program product comprising a second computer readable storage medium and a second computer program mechanism embedded therein (Quist et al., Figure 1) containing: instructions for receiving said prediction (Quist et al., column 5 lines 23-28); and instructions for communicating said prediction (Quist et al., column 5 lines 46-50).

Referring to claim 30, Quist teaches that said communication device further comprises a warning signal (see Quist, column 5 lines 10-15).

Referring to claim 31, Quist teaches that said apparatus further comprising a sending device for sending said data to a location remote from the system (see Quist, column 3 line 66 – column 4 line 11).

Referring to claim 32, Quist teaches that said first computer is located remote from the system (see Quist, column 4 lines 12-21).

4. Claims 68-72, 74 and 76 are rejected under 35 U.S.C. 102(e) as being anticipated by Eastman et al. (U.S. Patent No. 6,226,597) (hereinafter Eastman).

Referring to claims 68 and 74, Eastman teaches a computer implemented method for predicting failure in a system, comprising: determining failure mechanisms for a system (see Eastman, column 5 lines 17-24); measuring data associated with the system (see Eastman, column 4 line 62 – column 5 line 5); selecting at least one suitable physics based probabilistic failure model for each failure mechanism (see Eastman, column 5 lines 19-24); ascertaining a probability of failure for each of said failure mechanisms using a physics based first probabilistic failure model, wherein said probability of failure for each of said failure mechanisms is based at least partially on said data, said failure mechanisms, and variability of physical parameters of said system (see Eastman, column 5 liens 24-31); predicting a probability of failure for the

system using a physics based second probabilistic failure model, wherein said probability of failure for the system is at least partially based on said probability of failure for each of said failure mechanisms (see Eastman, column 5 lines 40-46); and communicating said probability of failure for the system (see Eastman, Figure 3 "output results").

Referring to claim 69, Eastman teaches determining one or more suitable physics based probabilistic failure models for each failure mechanism (see Eastman, column 5 lines 24-31).

Referring to claim 70, Eastman teaches that said failure mechanisms may be defined as cracking (see Eastman, column 6 lines 30-33).

Referring to claim 71, Eastman teaches that said failure mechanisms are selected from component loading (see Eastman, column 6 lines 40-46) and component usage (see Eastman, column 6 lines 40-46).

Referring to claim 72, Eastman teaches that said probability of failure for each of said failure mechanisms is further based on variability of physical parameters of said system (see Eastman, column 7 lines 13-25).

Referring to claim 76, Eastman teaches determining a confidence of said probability of failure of said system based on historical failure data (see Eastman, column 7 lines 13-25).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 15, 24, 35, 45, 47, 52, 54 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) in view of Gollomp (U.S. Patent No. 4,766,595).

Referring to claims 9, 35 and 57, Quist teaches all the features of the claimed invention except for ranking variables in said physics based probabilistic model according to said variable's contribution to said prediction.

Gollomp teaches ranking variables in said probabilistic model according to said variable's contribution to said prediction (see Gollomp, column 5 lines 3-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Gollomp because ranking the variables would have allowed the skilled artisan to determine which failures are more important (see Gollomp, column 3 lines 61-64).

Referring to claim 15, Quist teaches all the features of the claimed invention except for identifying at least one failure mechanism of a component of said system from said component's characteristics selected from the group consisting of: material properties, environmental conditions, design characteristics, component loading, and component usage; identifying significant random variables of said at least one failure mechanism; identifying statistical parameters of said significant random variables; and formulating a strategy for physics based probabilistic analysis based on said identifying steps.

Gollomp teaches identifying at least one failure mechanism of a component of said system from said component's characteristics selected from the group consisting of: material properties (see Gollomp, column 3 lines 28-34), environmental conditions (see Gollomp, column 3 lines 28-34), design characteristics (see Gollomp, column 3 lines 6-9), component loading (see Gollomp, column 3 lines 28-34), and component usage (see Gollomp, column 3 lines 28-34); identifying significant random variables of said at least one failure mechanism (see Gollomp, column 3 lines 61-66); identifying statistical parameters of said significant random variables (see Gollomp, column 3 line 66 – column 4 line 1); and formulating a strategy for physics based probabilistic analysis based on said identifying steps (see Gollomp, column 4 lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Gollomp because identifying the component failure and performing probabilistic analysis would have

allowed the skilled artisan to determine performance degradation (see Gollomp, column 4 lines 1-4).

Referring to claims 24, 47 and 54, Quist teaches all the features of the claimed in invention except that at least one said failure mechanism is described by an equation and said equation is divided into a capacity section and a demand section.

Gollomp teaches that at least one said failure mechanism is described by an equation and said equation is divided into a capacity section and a demand section (see Gollomp, column 6 lines 50-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Gollomp because dividing the equation into a capacity section and demand section would have allowed the skilled artisan to generate self-improving diagnostics (see Gollomp, column 6 lines 67-68).

Referring to claims 45 and 52, Quist teaches all the features of the claimed invention except that said probabilistic model comprising at least one failure mechanism of a component of said system.

Gollomp teaches that said probabilistic model comprising at least one failure mechanism of a component of said system (see Gollomp, column 5 lines 3-8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Gollomp because having

a model with a system component failure would have allowed the skilled artisan to generate an improved behavior model (see Gollomp, column 62-67).

6. Claims 10, 21-23, 36, 41-43, 46, 53, 58 and 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist) in view of Eastman et al. (U.S. Patent No. 6,226,597) (hereinafter Eastman).

Referring to claims 10, 36 and 58, Quist teaches all the features of the claimed invention except for predicting failure in a material's microstructure.

Eastman teaches predicting failure in a material's microstructure (see Eastman, column 5 lines 57-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Eastman because monitoring a failure in the microstructure allows the skilled artisan to determine an acceptable failure rate so that the system can maintain or increase its level of reliability (see Eastman, column 2 lines 44-50).

Referring to claims 21, 41 and 63, Quist teaches all the features of the claimed invention except that said physics based probabilistic model utilizes simulation techniques.

Eastman teaches that said physics based probabilistic model utilizes simulation techniques (see Eastman, column 5 lines 57-65).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Eastman, because a simulation would have allowed the skilled artisan to include preventive actions while handling multiple failure modes (see Eastman, column 6 lines 47-50).

Referring to claims 22, 42 and 64, Quist teaches all the features of the claimed invention except that said simulation techniques are direct methods selected from the group consisting of: Monte Carlo methods and importance sampling methods.

Eastman teaches that said simulation techniques are direct Monte Carlo methods (see Eastman, column 5 lines 57-65).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Eastman, because a simulation using the Monte Carlo method would have allowed the skilled artisan to include preventive actions while handling multiple failure modes (see Eastman, column 6 lines 47-50).

Referring to claims 23, 43 and 65, Quist teaches all the features of the claimed invention except that said simulation techniques are response surface methods selected from the group consisting of: Monte Carlo methods and importance sampling methods.

Eastman teaches that said simulation techniques are response surface Monte Carlo methods (see Eastman, column 5 lines 57-65).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Eastman, because a simulation using the Monte Carlo method would have allowed the skilled artisan to include preventive actions while handling multiple failure modes (see Eastman, column 6 lines 47-50).

Referring to claims 46 and 53, Quist teaches all the features of the claimed invention except that said at least one failure mechanism relates to a material microstructure.

Eastman teaches that said at least one failure mechanism relates to a material microstructure (see Eastman, column 5 lines 61-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Eastman because monitoring a failure in the microstructure allows the skilled artisan to determine an acceptable failure rate so that the system can maintain or increase its level of reliability (see Eastman, column 2 lines 44-50).

7. Claims 11, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist) in view of Bajpai et al. (U.S. Patent No. 4,985,857) (hereinafter Bajpai).

Referring to claims 11, 37 and 59, Quist teaches all the features of the claimed invention except that said data comprises referred data, sensed data, and inferred data

and wherein said method further comprises relating said referred data to a first set of variables, relating said sensed data to a second set of variables, and inferring a third set of variables from said sensed data.

Bajpai teaches that said data comprises referred data (see Bajpai, column 1 lines 62-65), sensed data (see Bajpai, column 2 lines 6-7), and inferred data (see Bajpai, column 2 lines 18-21) and wherein said method further comprises relating said referred data to a first set of variables, relating said sensed data to a second set of variables, and inferring a third set of variables from said sensed data (see Bajpai, column 1 lines 59-61).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Bajpai because multiple sets of data would have allowed the skilled artisan to diagnose multiple problems on a given machine (see Bajpai, column 2 lines 50-59).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist) in view of Gollomp (U.S. Patent No. 4,766,595) and further in view of Bajpai et al. (U.S. Patent No. 4,985,857) (hereinafter Bajpai).

Referring to claim 16, Quist and Gollomp teach all the features of the claimed invention except that said data comprises referred data, sensed data, and inferred data and wherein said developing step further comprises determining which of said significant random variables are related to said referred data, which of said significant

random variables are related to said sensed data, and which of said significant random variables are inferred from said sensed data.

Bajpai teaches that said data comprises referred data (see Bajpai, column 1 lines 62-65), sensed data (see Bajpai, column 2 lines 6-7), and inferred data (see Bajpai, column 2 lines 18-21) and wherein said developing step further comprises determining which of said significant random variables are related to said referred data (see Bajpai, column 1 line 62 – column 2 line 5), which of said significant random variables are related to said sensed data (see Bajpai, column 2 lines 6-17), and which of said significant random variables are inferred from said sensed data (see Bajpai, column 2 lines 18-40).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Quist to include the teachings of Bajpai because multiple sets of data would have allowed the skilled artisan to diagnose multiple problems on a given machine (see Bajpai, column 2 lines 50-59).

9. Claims 18-20, 38-40 and 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quist et al. (U.S. Patent No. 6,199,018) (hereinafter Quist) in view of Tyron et al. ("A Reliability-Based Model to Predict Scatter in Fatigue Crack Nucleation Life") (hereinafter Tyron).

Referring to claims 18, 38 and 60, Quist teaches all the features of the claimed invention except that said physics based probabilistic model utilizes fast probability methods.

Tyron teaches that said physics based probabilistic model utilizes fast probability methods (see Tyron, page 262-263, "Fatigue Reliability Model").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Tyron, because using probability methods would have allowed the skilled artisan to reduce time and cost associated with a purely empirical characterization program (see Tyron, page 258 lines 1-2, "Introduction").

Referring to claims 19, 39 and 61, Quist teaches all the features of the claimed invention except that said fast probability methods are direct fast probability methods selected from the group consisting of: First Order Reliability Methods, Second Order Reliability Methods, Advanced Mean Value methods, and Mean Value methods.

Tyron teaches that said fast probability methods are direct fast probability methods selected from the group consisting of: First Order Reliability Methods or Advanced Mean Value methods (see Tyron, page 262-263, "Fatigue Reliability Model").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Tyron, because using probability methods would have allowed the skilled artisan to reduce time and cost associated with a purely empirical characterization program (see Tyron, page 258 lines 1-2, "Introduction").

Referring to claims 20, 40 and 62, Quist teaches all the features of the claimed invention except that said fast probability methods are response surface fast probability methods selected from the group consisting of: First Order Reliability Methods, Second Order Reliability Methods, Advanced Mean Value methods, and Mean Value methods.

Tyron teaches that said fast probability methods are response surface: First Order Reliability Methods or Advanced Mean Value methods (see Tyron, page 262-263, "Fatigue Reliability Model").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Quist to include the teachings of Tyron, because using probability methods would have allowed the skilled artisan to reduce time and cost associated with a purely empirical characterization program (see Tyron, page 258 lines 1-2, "Introduction").

10. Claims 73 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eastman et al. (U.S. Patent No. 6,226,597) (hereinafter Eastman) in view of Bajpai et al. (U.S. Patent No. 4,985,857) (hereinafter Bajpai).

Referring to claims 73 and 75, Eastman teaches all the features of the claimed invention except that said variability of physical parameters comprises a variability of referred data, a variability of directly sensed data, and a variability of inferred determined data.

Bajpai teaches that said variability of physical parameters comprises a variability of referred data (see Bajpai, column 1 lines 62-65), a variability of sensed data (see

Bajpai, column 2 lines 6-7), and a variability of inferred determined data (see Bajpai, column 2 lines 18-21).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Eastman to include the teachings of Bajpai because multiple sets of data would have allowed the skilled artisan to diagnose multiple problems on a given machine (see Bajpai, column 2 lines 50-59).

Response to Arguments

11. Applicant's arguments filed 6 February 2004 have been fully considered but they are not persuasive.

Applicant argues that Quist does not teach a "physics based probabilistic model"; however, the Applicant's arguments are not well taken. Applicant states that the model utilizes direct, referred, and inferred variables of the system to predict the probability of failure; however, it is not clear how the language "physics based" implies utilization of these variables, as a "physics based probabilistic model" may simply pertain to any model which is based on physical data, such as magnetic flux (see Quist, column 10 lines 6-15), or torque (see Quist, column 13 lines 46-61), and further, as this data may be used to calculate a model for local prediction and diagnostics (see Quist, column 12 lines 40-60). Therefore, it is the Examiner's position that Quist meets the limitation of a "physics based probabilistic model". Furthermore, this limitation of sensed, referred and inferred variables is met by the teachings of Bajpai, as is stated above in the rejection pertaining to claim 11. Bajpai teaches that said data comprises referred data (see

Bajpai, column 1 lines 62-65), sensed data (see Bajpai, column 2 lines 6-7), and inferred data (see Bajpai, column 2 lines 18-21).

Applicant further argues that Eastman teaches away from the invention because Eastman states that the nature of the hardware may "be simulated using a single or series of failure distributions rather than trying to model the physical failure mechanisms of the individual failure modes (see Eastman, column 6 lines 33-40)." This passage states that physics based models (see Eastman, column 5 lines 17-31) can be used either singly or in series to determine failures which may be propagated through various modes (see Eastman, column 6 lines 30-33). The example noted in Eastman pertains to high cycle and low cycle fatigue (see Eastman, column 6 lines 40-46). Therefore, Eastman does teach "physics based probabilistic models" (see Eastman, column 6 lines 33-40).

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MKB

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